10,019

SUMMARY OF THE COOK INLET 1990 PROJECT REVIEW MEETING

By: Kenneth E. Tarbox

Regional Information Report[1] No. 2S90-2
Alaska Department of Fish and Game
Division of Commercial Fisheries, Central Region
333 Raspberry Road
Anchorage, Alaska 99581

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[1]Contribution 90-1 from the Soldotna area office. The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series may undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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INTRODUCTION

The Alaska Department of Fish and Game (ADF&G), Commercial Fisheries Division, held a two day review of commercial fisheries management and research issues in Cook Inlet, Alaska. The meeting was held in the Regional office on February 22 and 23, 1990 and those in attendance are listed in Table 1.

The purpose of this report is to summarize the results of the meeting for future reference by management and research staff. Since the meeting was a review by staff with extensive experience in Upper and Lower Cook Inlet, detailed discussions of routine programs were not conducted. Therefore, the reader is advised that reference to annual management and specific research reports may provide additional rationale for the decision making process.

The agenda for the meeting is attached as Appendix A.1. However, in the interest of clarity, agenda items have been grouped in the following discussion when they overlap a particular subject. Items requiring action by the staff are listed initially for quick reference.

ACTION ITEMS

1. The status of the Department using volunteers from the National Student Conservation Society will be pursued by Dennis Haanpaa.

2. The 1990 pre-audit spreadsheet issued by the Region has some limitations that make it difficult to implement for Upper Cook Inlet. Dave Waltemyer will contact Wayne Prigge to identify specific issues and Wayne will correct spreadsheet.

3. All oil spill related work will be identified on time sheets. This includes time spent on the Glacier Bay oil spill.

4. Staff will identify actual cost of projects for the FY92 budget request.

5. Crescent River sonar will not operate if Mt. Redoubt is behaving similar to the present. Dennis Haanpaa will contact Tom Miller, USGS to discuss risk factor with a Crescent River camp. Dennis will advise staff in late May and a final decision will be made at that time. Bruce King will contact Al Menin and assess risk to equipment from ash.

6. The issue of 3 mile state/federal jurisdiction has not been resolved for the 1990 salmon season. Ken Florey will pursue the issue with Ken Parker and report back to staff.

7. Henry Yuen requested that staff help him find personnel for the coming season. Steve Fried and Henry Yuen are to check with Wayne Prigge for reclassification or transfer of existing PCN. Upper Cook Inlet staff will check with their personnel for potential interest in positions.

8. A discussion of whether Lower Cook Inlet catch sampling and stock separation warranted the cost resulted in the recommendation that Tom Schroeder and Henry Yuen compile a priority list of river/harvest systems.

9. Lower Cook Inlet Board of Fisheries proposals are primarily directed at latitude and longitude corrections. Rance Morrison is to take responsibility for this task.

10. The Lower Cook Inlet staff requested a new 386 computer to handle escapement program. Rance Morrison is to prepare a purchase requisition.

11. Lower Cook Inlet herring stock separation was discussed for the Outer/Eastern district. Linda Brannian and Steve Fried are to contact Kathy Rowell and discuss her time availability. Linda is to obtain and list scale logs prior to Board of Fisheries meeting. Listing will be given to Ken Florey.

12. John Hilsinger is to provide Ken Florey with communication codes prior to the field season.

13. Herring test fish guideline for the 1990 season is 75 tons. Lower Cook Inlet staff is to work toward the guideline level.

14. A question of Fish and Wildlife protection availability during the herring season resulted in the assignment of Rance Morrison to coordinate with Protection.

15. A lack of communication between the Lower Cook Inlet and Kodiak staff on groundfish issues resulted in the recommendation that Rance Morrison contact L. Watson and that Lower Cook Inlet be added to the daily fax messages.

16. With a central stock separation staff the Area scale data was archived at the Region. However, with the decentralization of the stock separation staff the Area office may be more appropriate for scale storage. Steve Fried is to develop a plan for this issue.

17. Because of new personnel in Lower Cook Inlet, Ken Florey directed Wes Bucher to form an interaction group which includes Lower Cook Inlet fishermen. Florey will assist in setting it up.

18. Fish Creek weir funding and operation was not clear. Paul Ruesch will check with Bob Clupach on status and commitments made by Ken Florey.

19. The Kasilof River personal use gill net fishery markers are causing some confusion with Protection. Paul Ruesch will resolve issue.

20. A new project looking for sockeye salmon brain parasites in Upper Cook Inlet would be enhanced with samples from Lower Cook Inlet. Henry Yuen will provide samples from the following systems: China Poot, Nuka Bay, Chenik Lake, Aialik, and Mikfic. Ken Tarbox will prepare details of sampling prior to field season and coordinate with Henry. Ken Tarbox will also contact Adam Moles of Auk Bay to verify his commitment to project.

21. Computer programs dealing with Upper Cook Inlet salmon AWL data needs revision. Henry Yuen and Dave Waltemyer will discuss issue and report time requirements to Steve Fried and Ken Tarbox. Steve Fried to decide if time is available.

22. Computer programs dealing with Upper Cook Inlet herring and razor clams are needed. Paul Ruesch will coordinate with Fred Jamsen and prepare a memo to Linda outlining needs and time requirement.

23. Ken Florey authorized the installation of the Sunshine station fishwheel on the Susitna River for the 1990 season. Cost will be paid from test fish funds and will not exceed 10,000 dollars. Bruce King to install project.

24. The Upper Cook Inlet Offshore Test Fish project may require the use of the Lower Cook Inlet research vessel and associated sonar in July. Ken Tarbox to discuss this option with Paul Skvorc and John Hilsinger.

25. The issue of gear selectivity and harvest of Kasilof and Kenai River sockeye salmon was discussed. No additional monies are available for the 1990 season to implement a test fish program. However, Dave Waltemyer is to coordinate with Brian Bue to design a program to measure girth on samples from both systems. Brian will look at historical data base to assess the feasibility of doing an analysis based on existing information.

26. The cost of the staff meeting was not budgeted in Upper Cook Inlet pre-audit. John Hilsinger to add approximately 1,000 dollars to cover cost.

27. Tom Schroder will prepare and submit to John Hilsinger the cost of a lease plane/pilot option for Lower Cook Inlet operations.

28. Paul Ruesch will coordinate with Protection to resolve Kustatan, Kasilof, and Kenai marker issues and closed waters for set nets.

MEETING NOTES

Administrative Issues

A general discussion of administrative issues resulted in the following information exchange. In the area of personnel hiring, the clearing house will be operating for the 1990 season. There are no major changes anticipated in operational characteristics from last year.

New personnel additions at both the Region and Area level will require an updated organizational chart (an outdated chart with written corrections is presented in Appendix A.2; a listing of personnel can be found on Appendix A.3). Wes Bucher will replace Tom Schroeder in Homer, Steve Fried has replaced Chuck Meachum, Jr. as Regional Research Supervisor, Bev Cross is acting as the Bristol Bay Research project leader, a new publication technician will be hired in the Regional office, the Upper Cook Inlet Assistant Area management biologist is vacant and will be filled prior to the

field season, and Linda Brannian had been promoted to a Biometrician III and the Biometrics group separated from direct control of the Regional Research supervisor. In addition, a desk audit of the FB II research position in Homer is being made for a potential upgrade.

The reduction in Exxon Valdez oil spill projects will require a reduction in staff. The planning for that reduction is and will continue to take place and the intent is to minimize overall impacts. An oil spill project on the Kenai River which deals with effects from a large escapement of sockeye salmon to that system may be funded in 1990.

Seasonal employee issues do not appear to be significant this year. The potential of using personnel from the National Student Conservation Society for unfunded projects needs further exploration.

Budgets

The FY90 pre-audit will not be finalized until after all Area staff meetings. In general the pre-audit does not look bad. The Region is approximately 80,000 dollars in the red if one includes all request from the Area offices.

Oil spill related charges are to be identified to the Regional office by using the oil spill time sheets. These include charges for both the Exxon Valdez and Glacier Bay oil spills. The charges for oil spill issues must be documented in the remark section of the time sheet.

The FY91 budget request has the same problem as previous request. Namely, no costs are included for inflation, equipment replacement, etc. Discussions with Juneau staff resulted in the recommendation that the FY92 budget be prepared with actual costs as the base. A priority listing of all projects will then be made and matched to available funds. This may result in the loss of a project that could be submitted as supplemental or funded at pre-audit.

Oil Spill Considerations in Fishery Management

Ken Florey indicated that a new MOU is being written between the Departments of Fish and Game and Environmental Conservation to provide guidance on commercial fishing operations in 1990. The agreement has not been finalized but the basic provisions provide for more flexibility than in 1989. In Lower Cook Inlet no test fishing is required prior to the herring season in Kamishak Bay. In areas of significant contamination, for example beaches that are still heavily oiled, the Department will have to make a determination of impacts on product and gear (for example, the bays of the outer coast of Lower Cook Inlet). In Upper Cook Inlet, prior to the salmon season, a test fishery will be conducted. However, even if oil is encountered it does not mean the immediate closure of the fishery. Areas containing mousse or tarballs may be opened if it is determined that it is unlikely that these are likely to contaminate gear.

A communication problem between DEC and ADF&G was evident last year in the lower inlet. DEC did not report oil sightings back to ADF&G and concern was expressed by Tom Schroeder that a public perception conflict could result in 1990. For example, DEC could be releasing to the public that the following beaches are heavily oiled requiring clean-up while at the same time ADF&G is fishing adjacent to those beaches. It was agreed that this could happen and that while these are two separate issues, good communication will be required.

Mt. Redoubt and Crescent River Sonar

The recent volcanic activity of Mt. Redoubt raised the question of whether the Crescent River sonar camp should be operational in 1990. It was agreed that this was a risk analysis question and Ken Florey indicated that the camp would not be put in if conditions in May/June are similar to the present. His reasoning for this included: the safety of personnel adjacent to the mountain and our inability to extract them quickly; the risk to expensive electronic sonar equipment; and the risk to other gear. It was decided that USGS should be contacted for help in quantifying risk factor to personnel. Bruce King will contact Al Menin to discuss procedures to protect equipment. Ash fall could occur at any of the sites being operated. Personnel safety should be included in all plans (face masks provided, equipment operation procedures, when to seek shelter, etc).

Tom Schroeder indicated that ADF&G advised fishermen during the volcanic activity of Augustine. However, it was decided that ADF&G should not get into the fishermen safety business. The A.G. office has conveyed this message to Ken Florey and, therefore, we will not issue any advisory notices relative to Mt. Redoubt.

Paul Ruesch indicated that the resource has been managed without escapement counts in the past and that a fishery will take place with or without the Crescent River sonar camp. Obviously, escapement counts are preferred but not required.

Project Review - Salmon

United States Fish and Wildlife Service (USFW) Programs

The USFWS programs have been scaled back for the 1990 season in Cook Inlet. The weir program operated on the Swanson River in 1988 and 1989 has been terminated. In addition, the radio tagging program of late run coho salmon in the Kenai River has been concluded. Therefore, the only program in Cook Inlet in 1990 will be the Tustumena Lake sockeye salmon investigations. The USFWS will assist in the hydroacoustic investigations, continue radio tagging adult sockeye salmon to identify lake spawning component, and potentially look at otolith markings for estimating time of fry migration to the lake from spawning streams.

ADF&G Sport Fish Division

The ADF&G Sport Fish Division elected not to participate directly in the staff discussions. They indicated to the chairman that nothing will change from the previous year in terms of management and programs and, therefore, in the interest of time it was agreed that no discussion was necessary. However, a new coho coded wire tagging program which includes wild smolts may be implemented in 1990. No details were available at this time as the final decision to proceed has not been made.

ADF&G Lower Cook Inlet Commercial Fisheries Division

A public handout has been prepared which outlines the salmon programs and management outlook for the 1990 season (attached as Appendix A.4). A general discussion of all parties indicated the need for good information for the new Area management biologist. Tom Schroeder indicated that he did not know his availability to assist in 1990 because of uncertainty in his post-retirement employment status. Ken Florey requested that a spreadsheet for historical opening and closure dates be prepared to help Wes Bucher this season.

A concern for the inability to ground truth aerial survey estimates of salmon was made by Ken Florey. The following discussion indicated that ground truth was very difficult in the Lower Inlet as most estimates involve fish offshore in the lagoon areas. Some ground truth potential exist in the Southern and Outer District streams.

Enhancement of stocks in the lower inlet has prompted some concern for allocation of management resources and concern that the effects of enhancement on wild stocks is currently not measured. With a number of lakes coming on line over the next five years, additional staff time will be required. For example, sockeye smolt are being proposed at Thumb Cove, Bear Lake sockeye production has been approved, and pink salmon fry release is being proposed for Port Graham/ English Bay. A brief discussion of the impact of the pink salmon fry release and wild stock management took place. No decisions were made and the project has not been presented to the Regional Planning Team (RPT).

Most of the Lower Cook Inlet salmon research programs are similar to the 1989 season (project operational plans are written and undergoing review). Catch sampling programs will require the addition of 4 personnel and 3 additional PCN's. The major effort of the research and management staff in 1989 had been directed to the review of escapement objectives for the lower inlet systems. It appears that the data base is extremely variable and that this exercise has been extremely beneficial in helping to decide priorities. A complete report of this effort is in preparation. The escapement data will then be intergrated with the catch data to provide run analysis, forecast models, etc.

A concern was expressed that catch sampling has been directed at hatchery evaluation and that effort should be redirected to wild stocks and their evaluation. This was followed by a discussion on whether the costs of catch sampling was appropriate for the data gathered in certain specific cases. As a result of this discussion a priority listing of catch and escapement monitoring programs will be made for the lower inlet systems.

The catch reporting system and fish ticket entry in Lower Cook Inlet will be similar to previous years. No additional time is required from Fred Jamsen. However, some additional training time will be required for staff in the Homer office. This can be accomplished by the Lower Cook Inlet staff.

New salmon related projects in Lower Cook Inlet are directed at oil impact assessment, including fry digs at eight streams. A concern was expressed that the weir at Chenik will not be operated in 1990 under oil monies. This was confirmed by Ken Florey since the Chenik weir is not in any approved oil assessment project.

The Board of Fisheries will take up salmon proposals in 1990 for Cook Inlet. Therefore, the ADF&G will be submitting proposal for both the Lower and Upper Inlet if necessary. In general, no major problems are anticipated. In the Lower Inlet Rance Morrison will prepare proposals to correct latitude and longitude problems in the regulations. No proposals will be submitted by the Upper Cook Inlet staff. Potential sensitive areas in the lower inlet requiring ADF&G comment include the issue of set net expansion in Halibut Cove. Set net fisherman may have expanded the fishing area by 100 - 150 feet. This has resulted in conflict between users and, therefore, a proposal to the Board by the affected parties is anticipated to resolve this issue.

Reports from the Lower Cook Inlet staff are basically on time. Reports and anticipated completion dates are presented in Table 2.

ADF&G Upper Cook Inlet Commercial Fisheries Division

The 1990 Upper Cook Inlet salmon season should be good with a season harvest of 4.3 million sockeye salmon. It is probable that most of the return will be from Kenai River production which translates to extra eastside set net time above the Blanchard line. The increased efficiency of the drift gill net fleet over the past 10 years (due to increasing number of actual fishermen as opposed to part time fishermen, gear development, formation of cooperative fishing operations, and aerial spotting) will mean at least one regular scheduled fishing period will be curtailed or eliminated. The most probable date for this action is July 13, 1990. A pre-season outlook paper will be written explaining this course of action and it will be published in Smolts (Cook Inlet Aquaculture Association publication which is mailed to all permit holders and major sport fishing groups). Fish tickets will be processed as in 1989. Pre-season chum and coho salmon harvest forecast reflect concern about the effects of the 1986 floods in the Northern District.

Upper Cook Inlet research programs for 1990 are similar to 1989 (project operational plans have been written and submitted for review). Sonar counters will be operated in the Kenai and Crescent Rivers starting 1 July, in the Kasilof River starting 15 June, and in the Susitna River starting on 7 July. The Offshore Test Fish program will be initiated on 1 July and the Catch/Stock Separation programs will start on the same date. The Kenai River smolt project will start 15 May. New for the 1990 season will be the "in season" use of stock separation to identify the proportion of Kenai River stocks in the harvest. The use of new gum cards and op scanner in the catch sampling program was discussed. Dave Waltemyer will coordinate with Brian Bue on gum card purchase and with Bev Cross regarding op - scanner availability during

the season. In addition, it was decided that the Sunshine fishwheel operation should continue in 1990.

In addition to the regular scheduled research projects completed in 1989 the research staff made a number of advances relative to the Upper Cook Inlet 5-year research plan. These are detailed by subject in Appendix A.2. The major areas of interest in 1989 focused on stock separation techniques, development of a chart recorder to interface with the Bendix sonar counters, continuation of the sockeye lake rearing work in Kenai, Skilak, and Tustumena Lakes, and the implementation of a Kenai River smolt project. These are briefly discussed below.

Stock Separation. Investigations in 1989 revealed that scale pattern variables used to historically separate Kenai, Kasilof, and Susitna River stocks changed through time and over-lapped to a significant degree. This resulted in low classification accuracies of models and inconsistent results. A new procedure, using a computer program to generate an unlimited number of models was developed and applied to the 1987-1989 data. The results of this effort indicated that a two way model composed of Kenai River stocks and a composite of all other systems provided high classification accuracies and successful classification of Kenai River stocks.

Chart Recorder. Preliminary work in 1989 with the BioSonics chart recorder indicated a design flaw in the recorder. This was identified to BioSonics, Inc and hardware corrections made. Unfortunately, the unit was not returned until late in the 1989 season. However, preliminary investigations indicated that the interface of the chart recorder to the Bendix unit compromised the utility of the unit for salmon counting techniques. Work will continue in this area in 1990.

Sockeye Rearing Studies. During 1989, estimates of rearing fry were made in Kenai, Skilak, and Tustumena Lake systems. In addition, smolt estimates were made for both the Kenai and Kasilof River systems (fry estimates for the Kenai River by brood year are presented in Appendix A.6, smolt estimates for the Kasilof River system are presented in Appendix A.7). In general, fall fry production in the Kenai River from the 1987 brood year (escapement of 1.6 million) was 37 million, the highest recorded to date. Work in 1989 indicated that a significant holdover of 11 million fish occurred from that production. Production of fall fry from the 1988 brood year (1 million escapement) was only 14 million. Fry size continues to be relatively small at 51 mm and 1.2 grams.

Tustumena Lake studies are continuing and work in 1989 resulted in a number of positive findings. The USFWS radio tagging program of adult sockeye was successful and an estimate of lake spawners made. Preliminary results indicated that this figure will range between 20-35 percent. Fall fry estimates from the 1988 brood year indicated a return to high fry abundances with nearly 20 million age-0 sockeye fry in the lake.

Due to the Exxon oil spill, investigations were made by Exxon on oceanographic conditions in Upper Cook Inlet. As part of these investigations, Exxon did

some test netting in the inlet looking for subsurface tarballs. Incidental to these investigation, Exxon collected fish and had no interest in processing the samples. Therefore, the research staff requested the fishermen contracted to conduct the test netting to bring samples into the Soldotna office. This was done with the full knowledge of Exxon and the samples have been processed. Appendix A.8 and A.9 present the species composition of these samples. Interestingly, juvenile chinook, sockeye, and chum salmon comprised a significant portion of the samples processed by ADF&G.

New projects scheduled for the 1990 season are listed in Appendix A.10. Of particular interest to the Upper Cook Inlet staff for 1990 is the use of sockeye salmon parasites for stock separation purposes. A coordinated effort will be made with Adam Mole of Auk Bay Laboratories, Cook Inlet Aquaculture staff, FRED Division, and the Lower Cook Inlet staff to collect and process samples. Adam Mole has indicated he will pay for the shipping and processing of samples from Cook Inlet. In addition to this effort, the Upper Cook Inlet staff has a number of investigations planned relative to sonar related projects, computer program modifications for processing herring and razor clam data, and run reconstruction and sampling power investigations relative to the Offshore Test Fish project.

Two projects listed in Appendix A.10 will not be completed in 1990. These are test fish projects relative to: (1) monofilament gear and chinook salmon exploitation rates; and (2) gear selectivity studies on mesh size and sockeye salmon harvest rates. After considerable discussion it was decided that the cost of these projects warrant a full budget request and funding from the legislature prior to implementation. However, in order to address some public issues the staff will collect girth measurements from Kenai and Kasilof river sockeye salmon adults and compare these data to the historical data base on gear selectivity and mesh size.

Protection issues in Upper Cook Inlet revolve around the Kustatan sockeye salmon fishery, corridor enforcement, areas open to commercial set gill netting, personal use fishery markers at the Kasilof river, and Kenai river reduced closed waters. Within the Kustatan subdistrict the close waters around Big River are not adequate to protect the river mouth. Because the river tends to turn south after entering an extensive tidal flat area the standard one mile closure is not enforceable or adequate. After a lengthy discussion of the problem Ken Florey indicated that he would not oppose a one mile high water closure concurrent with the elimination of the Wednesday fishing period. This would reduce fishing time to two days per week and would not threaten the stock in 1990. The Board of Fisheries could address the issue at their fall meeting.

Corridor fishing along the eastside by the drift gill net fleet is probable during the 1990 season. Fish and Wildlife Protection has been advised that Upper Cook Inlet management will not be dictated by the availability of protection vessels.

A small number of set gill net fishermen in 1989 were observed fishing in closed waters. Unfortunately, a number of these cases involved fishermen who had fished these area for years and some even had shore fishery leases issued for these locations. In other cases fishermen were new to the area. Because

of this, Protection requested that an E.O. be written to expand areas open to set gill netting. It was decided that this could not be done and that for the 1990 season a similar policy to 1989 should be followed -- fishermen will be advised that they are in closed waters and a warning issued. The Board of Fisheries will be receiving proposals from the public to open these areas at the fall board meeting.

The location of the Kasilof River personal use gill net markers are causing some confusion for Protection and the public who fish from boats. Since the Regional Supervisor is one of these boat people the marker issue will be resolved prior to the 1990 season. Paul Ruesch will coordinate with Protection.

The closed waters surrounding the Kenai River have been modified in recent years to protect Kenai River stocks and provide an enforceable line. However, in some years the staff has reduced closed waters to allow additional exploitation of these stocks. Reduced closed waters lines used in the past have created some enforcement problems for Protection. Therefore, if reduced waters are needed in the future, a straight line will be drawn between markers located to the north and south of the river mouth. Exact location of the markers will be determined by ADF&G.

Project Review - Herring

ADF&G Lower Cook Inlet Commercial Fisheries Division

The Lower Cook Inlet herring management plan was mailed to fishermen the week of February 12th. The harvest guideline for 1990 will be 2,865 tons of which 573 tons will be taken in the Shelikof bait fishery. During the end of the 1989 season a significant movement of herring in Kamishak Bay was observed (may be an additional 20,000 tons). This was after the season (early June) and no samples were collected from these fish. In addition, these fish were not included in the pre-season forecast and are not in the harvest guideline. Therefore, it was recommended that a sampling program be defined for this component of the stock in 1990. A problem in leasing vessels to test fish at this time of year has occurred and, therefore, test fishing has been compromised. It was recommended that prior to the 1990 season short term vessel contracts be written and distributed to all Cook Inlet fishermen. If seine vessels are not available, alternative sample techniques such as variable mesh gill nets should be explored. Other than this issue, the 1990 season should proceed normally. A vessel has been committed to the fishery by Protection but details were lacking. Rance is to contact Protection to prepare final plans.

A question of herring stock separation in the Outer/Eastern Districts was brought up because of the potential for harvesting Prince William Sound stocks. After a brief discussion it was decided that Linda Brannian, Steve Fried, and the staff should list the available scale logs from previous years, assess whether Kathy Rowell has time to investigate the scale patterns, and to prepare a summary of this issue prior to the Board of Fisheries meeting.

Test fishing for herring will take place again in 1990. Point estimate work is the primary objective and a harvest guideline of 75 tons was established. Sale of these fish is usually to Seward Fisheries as they provide the best support. Linda Brannian suggested splitting sales to get a better estimate of roe percentage.

A spawn deposition survey was discussed for Kamishak Bay. The feasibility of this effort has not been explored in the lower inlet and the staff would like to look at this issue. Walking intertidal areas and diving in sub-tidal areas would be required. Timing of survey is critical and usually occurs 5-10 days following spawning. Ken Florey supported the concept of a spawn deposition survey but did not want staff to pursue it this year. Oil spill related projects and the lack of money were given as justifications for delaying this effort.

Ken supported the idea of having a staff member observe a program already in place in 1990.

John Hilsinger indicated that Al Kimker was interested in using the new split beam sonar for herring survey work. No decision or discussion of this issue followed.

ADF&G Upper Cook Inlet Commercial Fisheries Division

The Upper Cook Inlet herring fishery will be approached differently in 1990 than in 1989. Paul Ruesch is convinced that the Upper Inlet does not have separate stocks and, therefore, he plans to hold Tuxedni and Chinita Bays to 100 and 50 tons, respectively. In 1989 over 50 percent of the harvest was lost because fishermen were swamped with a significant movement of fish into the bays. The eastside bait fishery will be held to 100 tons. Samples will be collected similar to 1989 and sent to the Lower Inlet staff for processing.

Project Review - Groundfish

An overview of the groundfish fishery was presented by Bill Bechtol. A problem of communication was identified between the lower inlet staff and Kodiak. It was recommended that Rance Morrison contact Kodiak to resolve issue, maybe through the use of daily fax messages.

Groundfish registration continues to be an issue and Rance would like to have ADF&G withdraw from the process. No decision was made on this issue.

A discussion of whether PWS should be managed out of Cordova was initiated by John Hilsinger. The Cordova staff is willing to take on the task. However, reservations were expressed by the lower inlet staff. Most fish are landed at Seward and, therefore, PWS staff may have a problem with logistics and sampling. No decision was made on this issue.

Biometric Section

Linda Brannian gave a brief overview of the Regional Biometric section. The section is available to help the Area staffs design their projects to meet statistical guidelines, to provide review of reports for biometric applications, to work on special projects, and to provide data processing assistance.

Relative to report review it was decided that Area research staffs should send their reports to Steve Fried who will then transmit them to Linda for review. This will allow continued co-ordination between Steve and Linda and hopefully help in giving priority to the review schedule.

It was suggested that Linda and her staff could provide peer group instruction in statistical techniques. The remote nature of Alaska makes professional development difficult and, therefore, internal groups are probably more effective than sending only one or two individuals outside. This recommendation applies to all areas of research in Alaska.

Miscellaneous Issues

Computer needs continue to expand as technology increases and data processing requirements grow. Paul Ruesch indicated the need for a scanner in Upper Cook Inlet while the lower inlet staff noted the need for a 386 computer to process escapement data.

Ken Florey indicated that the Region will hire a publication technician to assist Area staff in report preparation. A general discussion of this approach followed with a general feeling that new publication techniques and report editing was something Area staffs could use. A caution, based on experiences with past editors, was expressed and Ken indicated that if the position was not helpful it would be eliminated.

Vessel requirements for the 1990 season are extensive and vessel availability limited. Therefore, new projects and time requirements are unlikely to be approved.

Enhancement issues continue to increase in Cook Inlet and the recent sockeye salmon smolt programs are of concern. It was noted that the Department should be formulating long term goals relative to this issue. Evaluation of coded wire tagging programs and their effectiveness should be done as Cook Inlet is facing similar issues in the near future.

Table 1. List of participants at the 1990 Cook Inlet Project Review Meeting held in Anchorage, Alaska on February 24 and 25, 1990.

Regional Office Staff

Kenneth R. Florey - Regional Supervisor
John Hilsinger - Regional Management Biologist
Dennis Haanpaa - Regional Management Biologist
Steve Fried - Regional Research Biologist
Linda Brannian - Regional Biometrician
Henry Yuen - Project Biologist
Brian Bue - Biometrician
Fred Jamsen - Biometrician

Lower Cook Inlet Staff

Thomas Schroeder - Area Finfish Management Biologist
Rance Morrison - Assistant Finfish Management Biologist
Bill Bechtol - Project Biologist - Groundfish
Wes Bucher - Area Finfish Management Biologist - 1990

Upper Cook Inlet Staff

Paul Ruesch - Area Management Biologist
Kenneth Tarbox - Research Project Leader
Dave Waltemyer - Research Biologist
Bruce King - Research Biologist

Table 2. List of reports in preparation for Lower Cook Inlet, Alaska projects.

Author[1]	Report	Draft Due
Yuen	Adundance, age, sex and size statistics of sockeye salmon, LCI, 1989.	Submitted for review.
Yuen	Bristol Bay sockeye salmon length,weight relationships.	Submitted for review.
Yuen	LCI salmon forecast for 1990.	Submitted for review.
Yuen	Abundance, age, sex, and size statistics for Pacific salmon, Bristol Bay, 1989.	Submitted for review.
Yuen	Comparsion of LCI pink salmon forecast methods.	Submitted for review.
Yuen	Lower Cook Inlet pink, sockeye, and chum salmon escapement goals.	8 March
Schroeder	1989 Annual Management Report.	15 March

[1] Co-authors not listed.

Table 3. List of reports in preparation for Upper Cook Inlet, Alaska projects.

Author	Report	Draft Due
Tarbox and King	An estimate of juvenile fish densities in Skilak and Kenai lakes, Alaska 1989.	1 April 1990
Tarbox	1989 Offshore test fish	15 May
Tarbox	1990 staff meeting notes	1 March
King and Tarbox	Kenai river smolt - 1989	15 May
King and Tarbox	1989 Escapement Report	15 April
King and Davis	Length/weight report on sockeye salmon	15 March
Waltemyer	1989 Catch and escapement AWL	21 March
Waltemyer,Kelly, and Tarbox	1987 - 1989 sockeye salmon stock separation in UCI	13 April
Bue,Waltemyer, and Tarbox	Stock separation evaluation	15 May
Waltemyer	Fin ray analysis - sockeye	30 May
Waltemyer	1988 Catch and escapement	waiting on Juneau review.
Ruesch	1989 Annual Management Report	15 May

Appendix A.1

AGENDA

UPPER & LOWER COOK INLET STAFF MEETING

FEBRUARY 22-23, 1990

Kenneth E. Tarbox, Chairman

Thursday, February 22, 9:00 A.M.

I. Administrative Issues
- A. Filling position vacancies
- B. Seasonal Employees
- C. Other

II. Budgets
- A. FY 90 Pre-Audits
  1. Salmon
  2. Herring
  3. Groundfish
  4. Oil Spill
- B. FY 91 Request

III. Natural and man-made disasters
- A. Oil Spill Considerations in Fishery Management - Status of new MOU
- B. Mount Redoubt impacts and policy

IV. Project Review
- A. Salmon
  1. USF&WS
  2. Sport Fish
  3. Lower Cook Inlet
     a. Management
     b. Catch sampling
     c. Escapement
     d. Fish Tickets
     e. New Projects
     f. Board Proposals
     g. Report Status
  4. Upper Cook Inlet
     a. Management
     b. Catch Sampling/Stock ID
     c. Sonar (both river and lake)
     d. Off-shore Test Fish

e. Fishery Monitoring (Catch Reporting, Fish Tickets)
f. Kenai River Smolt
g. New Projects
h. Other progress reports
i. Hidden Lake/Trail Lakes Issues
j. Board Proposals
k. Report Status

5. Project Operational Plans - Status

B. Herring
1. LCI
a. Management
b. Sampling
c. Test Fishing
2. UCI

C. Groundfish

V. Fish & Wildlife Protection

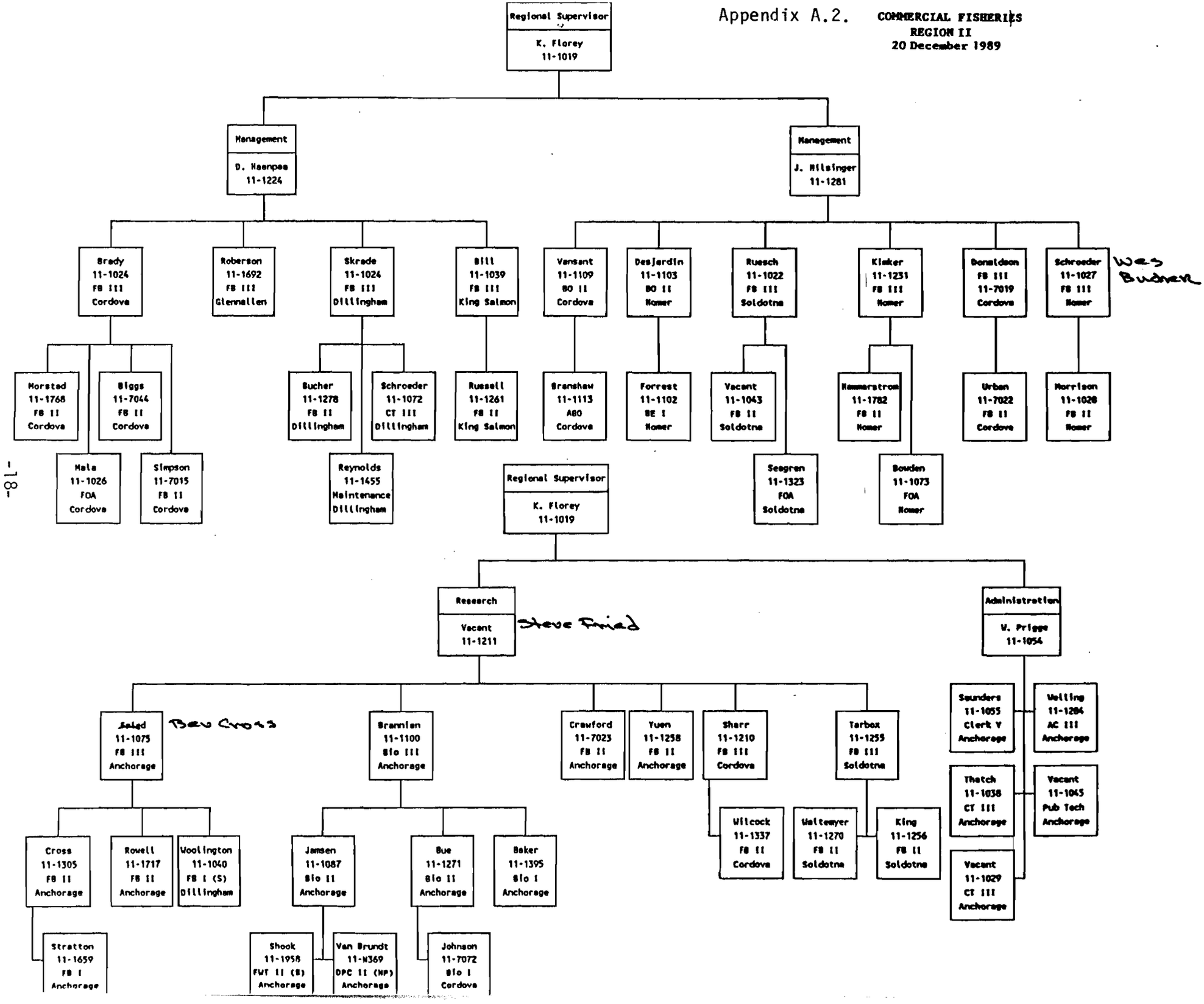
A. LCI Herring
B. LCI Salmon
C. UCI Salmon
1. Kustatan closed waters
2. Corridor enforcement
3. Set net areas
4. Kasilof PU Markers
5. EO notification procedures
6. Other

VI. Computers/Data Processing

A. Hardware needs
B. Software needs
C. Programming needs

VII. Miscellaneous Issues

Appendix A.2. COMMERCIAL FISHERIES
REGION II
20 December 1989



Appendix A.3. Commercial Fisheries Region II 8 December 1989

ANCHORAGE

Kenneth R. Florey	1019	Regional Supervisor	
Charles P. Meacham	1211	Regional Research Biologist	
Dennis G. Haanpaa	1224	Regional Management Biologist	(PWS/BB Finfish & Herring)
John R. Hilsinger	1281	Regional Management Biologist	(Shellfish & CI Finfish)
Stephen M. Fried	1075	Research Project Leader	(BB)
Henry J.K. Yuen	1258	Research Project Leader	(LCI)
Beverly A. Cross	1307	Research Biologist	(BB Research)
Katherine Rowell	1717	Research Biologist	(BB Research)
James D. Woolington	1040	Research Biologist	(BB Research)
Barry L. Stratton	1659	Fishery Biologist I / Stock ID	(BB Research)
Drew L. Crawford	7023	Oil Spill Impact Assessment Coordinator	
Linda K. Brannian	1100	Regional Biometrician	
Frederick W. Jamsen	1087	Biometrician II	
Brian G. Bue	1271	Biometrician II	
Timothy T. Baker	1395	Biometrician I	
Wayne L. Prigge	1054	Administrative Assistant II	
Karen B. Saunders	1055	Clerk V	
Melita Welling	1284	Accounting Clerk III	
Virginia V. Shook	1958	Fish & Wildlife Technician II	
Pamela S. Thatch	1038	Clerk Typist III	

CORDOVA (PWS)

James A. Brady	1024	Area Management Biologist	(PWS & CR)
Stephan P. Morstad	1768	Assistant Area Management Biologist	(PWS & CR)
Vacant	1084	Fishery Biologist II	(PWS)
Sam Sharr	1210	Research Project Leader	(PWS & CR)
John A. Wilcock	1337	Research Biologist	(PWS & CR)
Charles E. Trowbridge	1649	Assistant PWS Shellfish Biologist	
Cheryl A. Mala	1026	Field Office Assistant	
Wayne K. Donaldson	7019	PWS Area Shellfish Biologist	
Evelyn D. Biggs	7044	Assistant Area Management Biologist	
Ellen M. Simpson	7015	Assistant Area Management Biologist	
Joseph D. Urban	7022	Shellfish Research Biologist	
James P. Vansant	1109	Boat Officer II	(R/V Montague)
David W. Branshaw	1113	Assistant Boat Officer	(R/V Montague)

DILLINGHAM (BB)

Jeffrey R. Skrade	1042	Area Management Biologist	(Nushagak)
Wesley A. Bucher	1278	Assistant Area Management Biologist	(Togiak)
Arthur M. Reynolds	1455	Maintenance Worker II	
Herman Schroeder	1072	Clerk Typist III	

GLENNALLEN (CR)

Kenneth Roberson	1692	Research Project Leader	(Upper Copper River)

HOMER (LCI)

Thomas R. Schroeder	1027	Area Finfish Management Biologist	(LCI)
Rance Morrison	1028	Assistant Finfish Management Biologist	(LCI RII Bottomfish)
Alan T. Kimker	1231	Cook Inlet Area Shellfish Biologist	(CI)
Lee F. Hammarstrom	1782	Assistant CI Shellfish Biologist	(CI)
Richard L. Gustafson	1600	LCI Shellfish Biologist	
Marnee E. Bowden	1073	Field Office Assistant	
Paul J. Desjardin	1103	Boat Officer II	(R/V Pandalus)
Craig M. Forrest	1102	Boat Engineer I	(R/V Pandalus)

KING SALMON (BB)

Donald L. Bill	1039	Area Management Biologist	(Naknak/Kvichak)
Richard B. Russell	1261	Area Management Biologist	(Ugashik/Egegik)

SOLDOTNA (UCI)

Paul H. Ruesch	1022	Area Management Biologist	(UCI)
Vacant	1043	Assistant Area Management Biologist	(UCI)
Kenneth E. Tarbox	1255	Research Project Leader	(UCI)
David L. Waltemyer	1270	Research Biologist	(UCI)
Bruce E. King	1256	Research Biologist	(UCI)
Sandra L. Seagren	1323	Field Office Assistant	

Appendix A.4.

LOWER COOK INLET
1990 SALMON OUTLOOK

The 1990 Lower Cook Inlet salmon harvest is projected to be very good and considerably above the previous two years. The vast majority of the production (%) will continue to be from hatchery and lake stocking enhancement projects. Projected harvest and forecasts for specific areas are as follows:

LCI	Harvest Projections
King	2,000
Sockeye	485,000
Coho	10,000
Pink	1,900,000
Chum	60,000
	372
Total	2,457,000

The following are included in the figures above:

Tutka Hatchery	(pinks)		1,000,000
	(chums)		8,200
HCL	(pinks)	3-6%	400,000
Leisure Lake	(sockeye)		150,000
Chenik Lake	(sockeye)		150,000
Kirschner Lake	(sockeye)		30,000
Pt. Dick Lake	(sockeye)		30,000
Paint River Lakes	(sockeye)		25,000
			385,000
Other LCI	(sockeye)		100,000
Natural LCI	(pinks)		
Southern District			100,000
Outer District			100,000
Kamishak District			300,000
Eastern District			0
			500,000

Sockeye

Sockeye catches should be good to all areas, with the exception of English Bay, but will be dominated by the Leisure and Chenik Lake returns. Besides the excellent returns and escapements to Chenik Lake, one million fry were stocked from the Crooked Creek Hatchery in 1987 and the lake was fertilized to increase food production. The majority of these fish should have left the lake in 1988, returning as adults in 1990 and 1991. Adult sockeye should also

return to two additional projects at Port Dick Lake and Kirschner Lake for the first time. Harvest levels are not projected to be very large due to the absence of freshwater survival data.

Good escapements occurred in all naturally producing systems in 1984-1986 and returns should be good. Harvests in Nuka Bay are expected to increase from the low levels of 1988 and 1989 and returns to Mikfik and Aialik Lakes were expected to be similar to the last two years.

Pink

Pink salmon escapements were generally poor in 1988 with the exception of the Kamishak District. No pink salmon harvest is anticipated in the Eastern District, but isolated harvests may occur in the Outer District at Desire Lake Creek, Port Dick and Island Creek and in Port Chatham. Returns to all natural producing streams in the Southern District could produce limited harvests with Humpy Creek and Seldovia Bay having the best prospects.

Returns to the Tutka Bay Hatchery and a secondary fry release location at Halibut Cove Lagoon (HCL) will again be the mainstay of pink salmon fishery. A record return of over one million pinks should occur to Tutka Bay with an additional 400,000 fish expected to HCL. Over 36 million fry were released in 1989 at these locations and ocean survival rates could easily push the returns close to 2.0 million fish.

Healthy escapements occurred to the three major pink streams in the Kamishak District in 1988 and were similar to the 1987 escapements which produced a total return of 830,000 fish in 1989. Given similar survival conditions, the 1990 pink harvest in this district should reach 300,000 fish and, depending on the seine fleets ability to harvest certain returns, could approach 400,000 fish.

Chum

The chum salmon harvest in 1988 was a record low harvest. Average weights of fish from the Kamishak District, where over 70% of the harvest occurred were over nine pounds, indicating few Age-4 chum salmon in the catch. Escapements of chum salmon in 1985 and 1986 were 51,000 and 108,300 fish, respectively.

Age-5 chums usually make up the majority of a large harvest year. Due to the low 1985 escapement, poor pink salmon return in 1987 and the poor showing of Age-4 chums in 1989, it is unlikely that any significant chum harvest will occur in 1990. Harvests are expected to be concentrated in the Island Creek area of Port Dick, near McNeil River and in the northern portion of the Kamishak District.

General Opening Schedule

1.) The Kamishak District now opens on June 1 by the regulation book.

2.) The China Poot and Tutka Bay subdistricts will open on Monday June 25 to fishing five days per week, 6 a.m. Monday until 6 a.m. Saturday and Halibut Cove Lagoon will open to fishing on July 2 on the five day per week basis.

3.) Nuka Bay and Aialik will probably open around June 20-28 and if a return to Aialik occurs as expected, the lagoon opening may be allowed early in the fishery to test the run strength.

4.) The Chenik subdistrict will probably be opened on a five day per week basis around June 21 or 25 with adjustments being made as fish move into the lake.

5.) The English Bay and Port Graham area will be closed to commercial set gillnet, and subsistence fishing and the English Bay River drainage will be closed to sport fishing on May 30 in anticipation of another extremely poor sockeye salmon return. The Dogfish Bay area will be closed to subsistence fishing on May 26 due to the same reasons.

Emergency Order Announcements

Emergency order announcements are issued at 9:00 a.m., 12:00 noon and 3:00 p.m. on SSB channels 4125 and 2512 and on marine VHF channel 10. Announcements are also put on KGTL & KBBI radio stations and on our recordaphone (235-7307).

cc: Florey
Hilsinger
Meacham
Dudiak
Morrison

Appendix A.5. **FIVE YEAR RESEARCH PLAN - YEAR TWO RESULTS**

Project: Hydroacoustic enumeration of Adult Salmon

Recommendation: Conversion of all sonar counting operations to substrateless.

Action: Crescent sonar was converted in 1988. Results of 1989 indicated no major problems. Examination of Kenai River south bank indicated that sonar could be operated without a substrate but counting range was limited to 20 feet.

Recommendation: Establish procedure for estimating error associated with sonar counting operations.

Action: No action taken directly by staff in 1989. However, analysis of error associated with sonar counting operations in Upper Cook Inlet was initiated by Faegre and Benson Law firm, Minneapolis, Minn. as part of the Glacier Bay oil spill litigation.

Recommendation: Evaluate available hydroacoustic equipment for suitability for present and future tasks.

Action: Continued evaluation of Biosonic chart recorder as an additional tool to help in verification of Bendix counters during low passage rates. System is not clean and further evaluation will take place in 1990.

Action: Kenai north bank counter was modified in 1989 to include variable hit criteria. This frees the experimental counter for further investigations at other locations.

Action: Biosonic dual beam processor will be used in the 1990 season at Yentna River sonar site to evaluate pink salmon target strength.

Recommendation: All sonar equipment should be calibrated and a documentation file be established for each unit.

Action: Counter/transducer units have been established and files will be prepared prior to the 1990 season. Calibration is still lacking.

Recommendation: Assess migratory behavior of adult sockeye salmon in vicinity of counting operation.

Action: No action pending modification of counters and chart

recorder.

Project: Offshore Test Fishing

Recommendation: Examine historical data base for relationships of catch to environmental variables.

Action: None

Recommendation: Evaluate migratory corridors relative to sample stations.

Action: Fished station 6 over course of a day to assess variability.

Recommendation: Prepare run reconstruction and exploitation rates by period and historical data.

Action: No drift fishery in the 1989 season will allow a complete analysis of exploitation rates by date.

Project: Stock Identification of Sockeye Salmon

Recommendation: Evaluate model selection procedures and overall accuracy of the procedure.

Action: Continued in 1989 to develope alternative approaches to stock separation. These included developing programs to run multiple models on a specific catch, further evaluation of the ability to separate Kenai vs. Other stocks, and identification of bias in LDF technique.

Recommendation: Evaluate historical data base and adjust if necessary.

Action: None

Project: Salmon Catch and Escapement Sampling

Recommendation: Examine existing program to assess how representative the samples are.

Action: No further action than looking at drift fleet harvest

distribution in 1988.

Action: Susitna River fish wheel installed at Sunshine Station to collect additional sockeye salmon scale samples. Trap installed at Crescent River in 1989 which eliminated need for test fishery.

Recommendation: Examine error associated with estimating age composition for days not sampled in a fishery.

Action: None

Project: Escapement Objeetive Definition

Recommendation: Develop Susitna river subsystem evaluation program.

Action: Deleted from 1990 budget request by Juneau.

Recommendation: Evaluate fish wheel mark/recapture techniques and mainstem sonar options for long term escapement monitoring.

Action: None

Recommendation: Develope production model for Kasilof River drainage.

Action: Continued long term studies of Tustumena Lake in 1989. Co-operative report prepared with FRED division which lists all data collected to date. Project team is still functioning.

Recommendation: Implement a long term program for the Kenai River system to assess sockeye salmon production.

Action: Sonar estimates of rearing fry in Kenai and Skilak Lakes were made in 1989.

Action: An estimate of the number of smolt leaving the Kenai River system was made in 1989.

Action: A new trawl was tested for capturing juvenile sockeye salmon in Kenai and Skilak Lake. Capture rates appeared satisfactory to meet AWL sampling requirements.

Action: Limnological data was collected by FRED division in Skilak Lake in 1989.

Project: Computer Data Base for Escapement Information

Recommendation: Prepare data base system similiar to catch program.

Action: Original program completed in 1988. Minor modifications made in 1989.

Project: Analysis of Commercial Harvest Data

Recommendation: Evaluate data base for potential relationships relative to management and research objectives.

Action: None

Project: Climatic and Hydrological Data Base

Recommendation: Prepare user friendly computer data base of climatic and hydrological data on major rivers.

Action: None

Project: Evaluation of Eastside Set Net Fishery

Recommendation: Define the specific operational characteristics of the eastside set net fishery.

Action: The 1989 season, with the absence of a drift gill net harvest, will allow post season evaluations of exploitation rates by day.

Project: Marine Environment-Oceanographic Studies

Recommendation: Develope programs to evaluate migratory behavior of sockeye salmon relative to oceanographic conditions.

Action: Oceanographic studies were preformed by Tom Royer, University of Alaska, during August of 1989. As part of those studies a test net was looking for subsurface oil. Fish collected incidental to that effort were identified and a report is in progress.

Project: Spawning Distribution of Kenai River Sockeye Salmon

Recommendation: Radio tag adult sockeye salmon to define spawning distribution.

Action: None. A radio tagging program was conducted by the USFWS in the Kasilof drainage in 1989. Preliminary results indicated lake spawners comprised about 25 percent of the total spawning population.

Project: Chum, Pink, Coho, and Chinook Salmon Escapement Studies

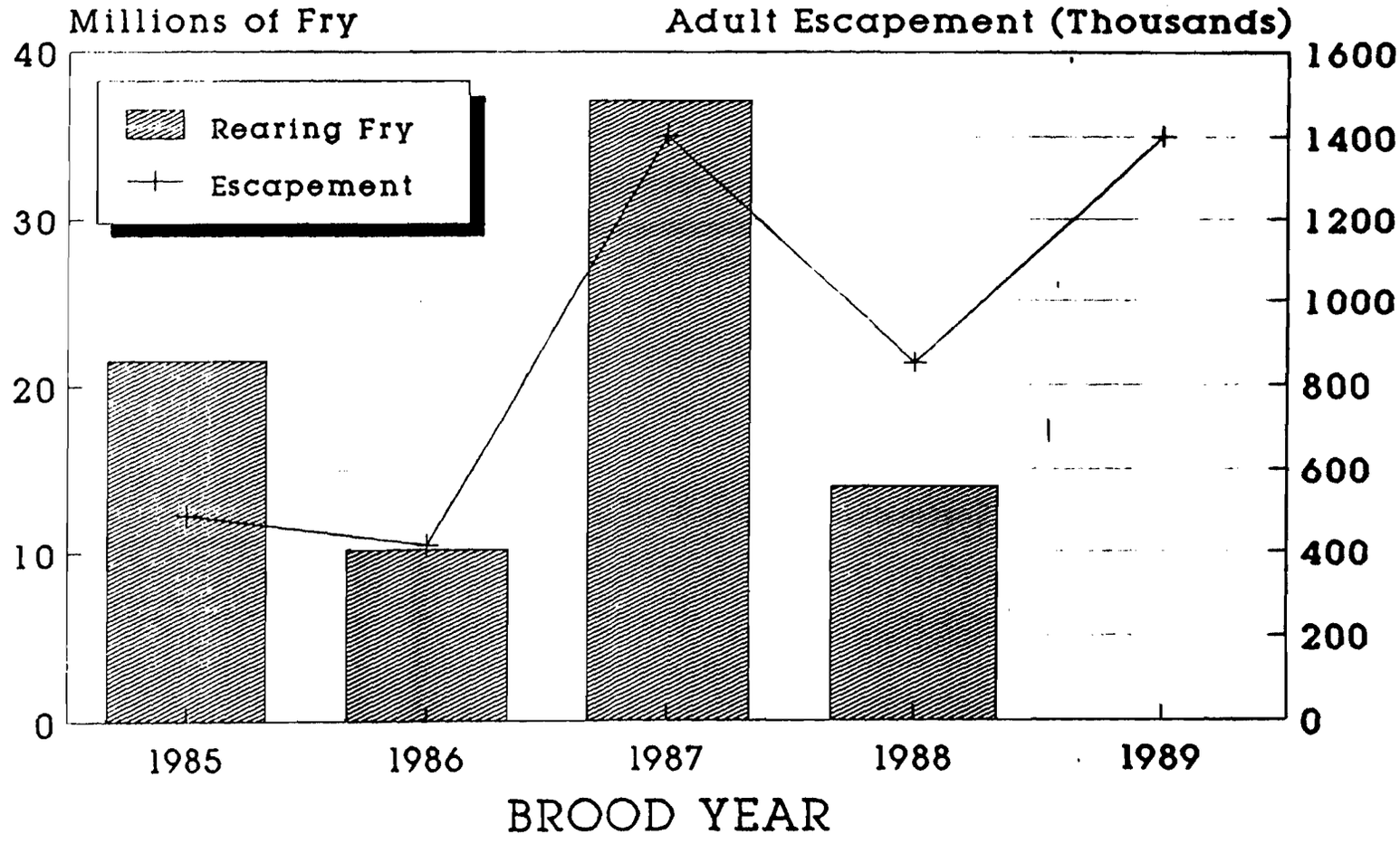
Recommendation: Develop escapement estimates for the above species in the Susitna and Kenai River systems.

Action: Sport Fish Division made chinook salmon escapement estimates in 1989 for Kenai River stocks. Coho salmon were radio tagged in the Kenai River in 1989 by the USFWS.

Appendix A.6.

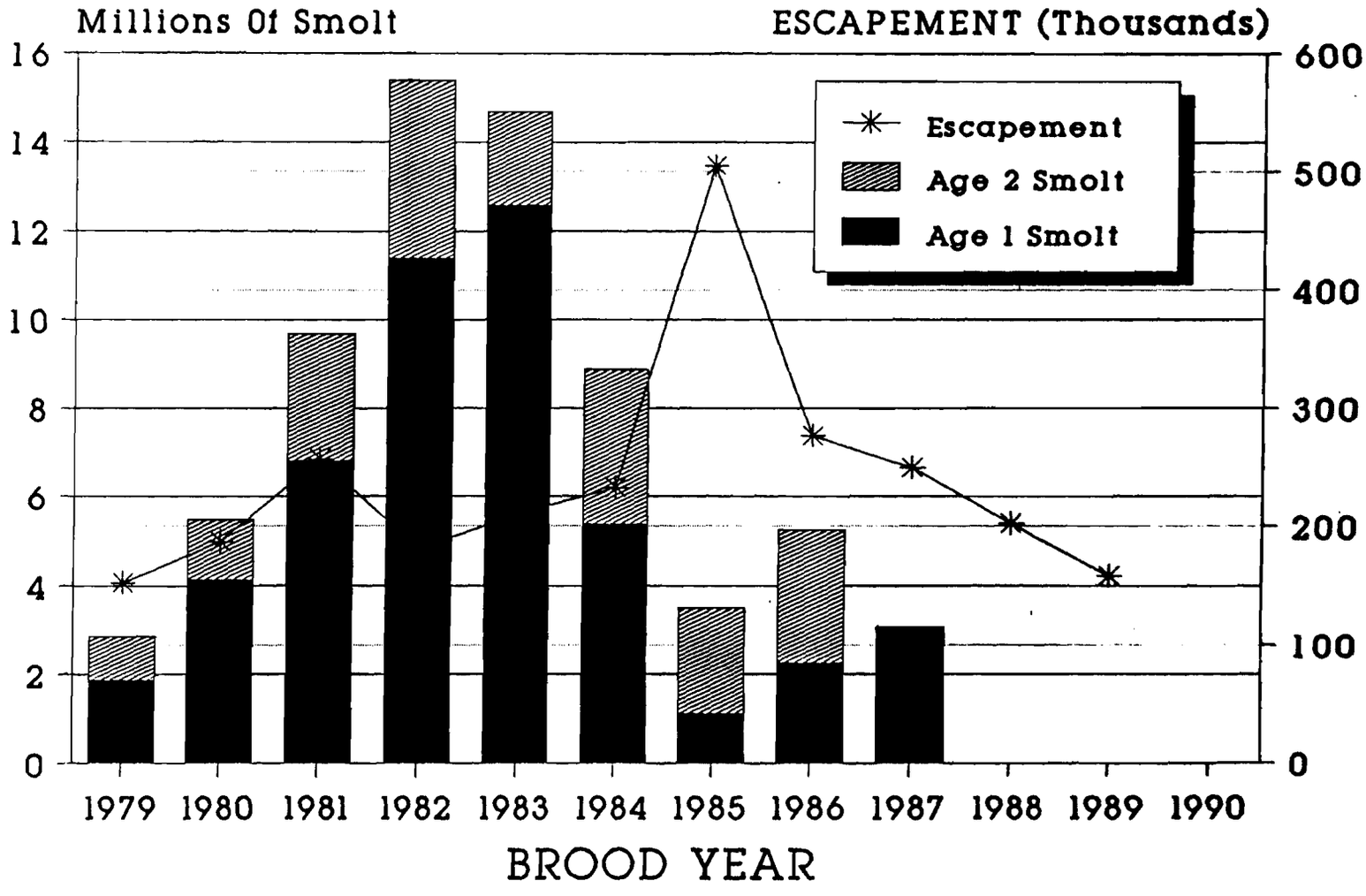
KENAI RIVER SOCKEYE SALMON

Estimated Fry Production

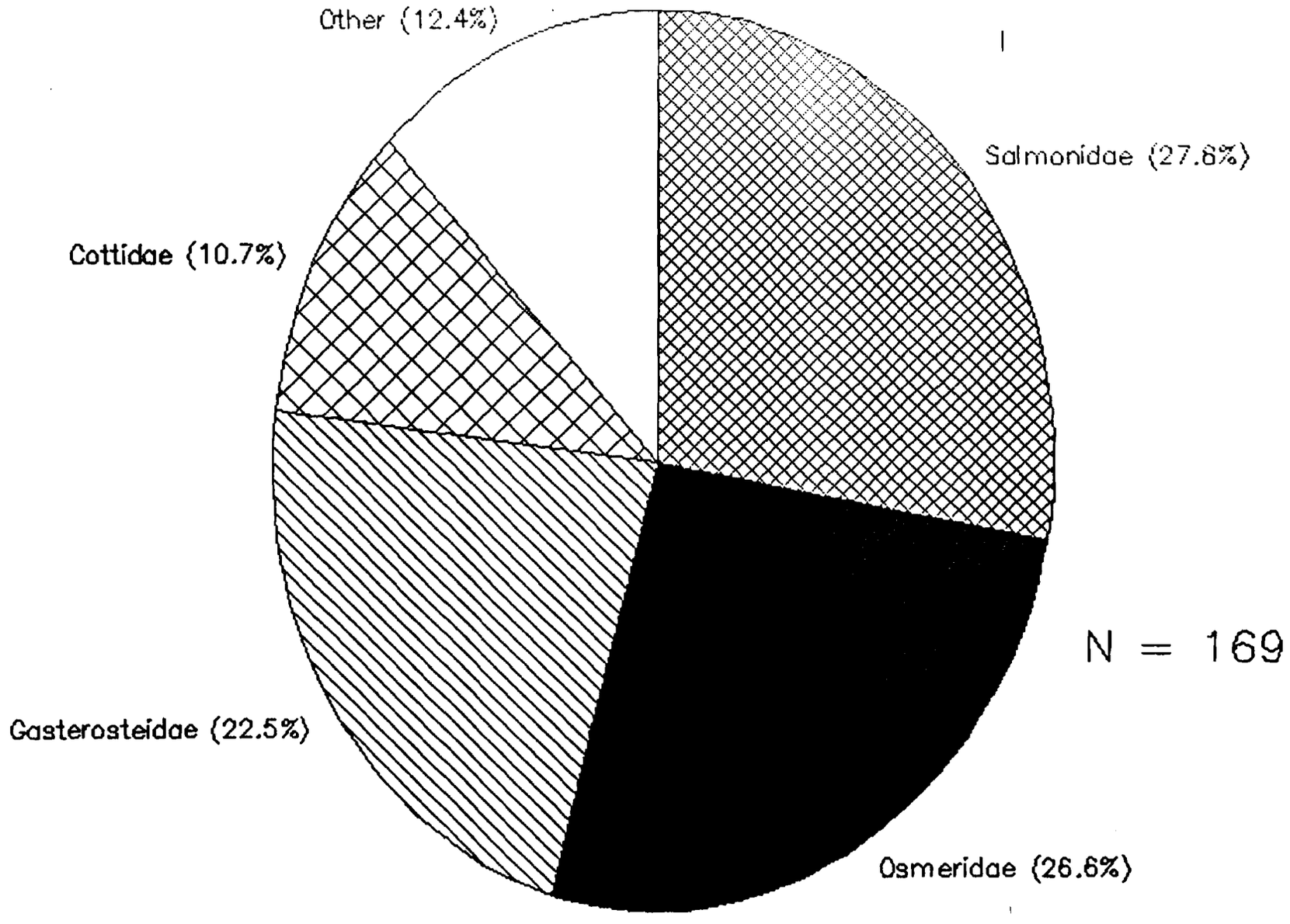


Appendix A.7.

KASILOF SMOLT PRODUCTION



Appendix A.8.



Fish species composition of 13 net tows taken in Upper Cook Inlet, Alaska during August, 1989.

Appendix A.9.

Table 1. Species collected incidental to Exxon oil related investigations in Upper Cook Inlet, Alaska in 1989.

	Set Number												
Species	1	2	3	4	5	6	7	8	9	10	11	12	13
Fish													
Ammodytes hexapterus			1										
Blepsias cirrhosus					5		2		1	1	6	2	1
Clupea pallasii								1			4		
Gasterosteus aculeatus	1		2	12	1	1			21				
Microgadus proximus	4												
Oncorhynchus keta	6	3									7		
Oncorhynchus nerka				1		7		1			7		
Oncorhychus tshawytscha		3		1		2		3	2	3	1		
Spirinchus juvenile			6	1							2		
Spirinchus thaleichthys	13								4		17		
Thaleichthys pacificus											2		
Trichodon trichodan	4	1				1		1		1			
Zaprora silenus		1			1		1						
Invertebrates													
Berryteuthis magister	1												
Pandalus borealis	5	2									1		

Appendix A.9. (p. 2 of 2)

	Fequency N=13	Total
Ammodytes hexapterus	1	1
Blepsias cirrhosus	7	18
Clupea pallasii	2	5
Gasterosteus aculeatus	6	38
Microgadus proximus	4	4
Oncorhynchus keta	3	16
Oncorhynchus nerka	4	16
Oncorhychus tshawytscha	7	15
Spirinchus juvenile	3	9
Spirinchus thaleichthys	3	34
Thaleichthys pacificus	1	2
Trichodon trichodan	5	8
Zaprora silenus	3	3
Invertebrates		
Berryteuthis magister	1	1
Pandalus borealis	3	8

Appendix A.10. PROPOSED NEW PROJECTS FOR 1990

The following list of projects are not covered in the general fund budget. However, for some of the projects the reallocation of minor effort or resources can allow for their completion. They are presented for discussion at the 1990 staff meeting. Projects are not listed in order of priority.

Project: Sonar

Recommendation: The Department should send the existing Bendix sonar units for calibration at an existing laboratory, such as BioSonic, Inc., or have calibrations preformed by hydroacoustic group in Anchorage. It would appear that this would be prudent for at least the counters used on the Kenai River from 1987 to 1989. Litigation resulting from the Glacier Bay oil spill has already resulted in an outside evaluation.

Recommendation: A potential exist that Susitna river pink salmon are of a size that they may not meet threshold criteria of the Bendix sonar counters. However, the use of fish wheels to separate sonar counts to species assumes that all salmon captured are counted by the Bendix unit. Therefore, to test whether pink salmon are being over- represented in the sonar counts the BioSonic Inc., dual beam sonar will be taken to the Yentna river during the 1989 field season. During the peak of the run in situ target strength measurements will be made and the distribution of those measurements compared to the threshold criteria.

Recommendation: During 1988 the use of a BioSonic chart recorder was investigated as a potential tool for verification of sonar counts during low passage rates. Initial work indicated that the BioSonic unit had a design flaw which resulted in only selected returning pulses marking. The unit was modified by BioSonic Inc. and received on site at Kasilof late in the 1988 season. Preliminary results indicated that the modifications made to interface the Bendix to BioSonic equipment compromised the usefulness of the unit. Therefore, during the 1989 season further evaluations of this problem will be made.

Recommendation: The hydroacoustic estimates of juvenile sockeye salmon in Kenai and Skilak lakes have consistently shown decreasing target strength with depth. This may be biologically real or may be a function of attenuation of the signal by the glacial silt found in these lakes. Therefore, in co-operation with Paul Skovrc, an investigation into this phenomena will be completed in 1990 (depends on Paul's schedule).

Recommendation: The sample effort necessary to estimate juvenile sockeye salmon densities in Kenai and Skilak lakes has been of concern to Chief Fisheries Scientist office. Therefore, in 1990 a four-fold increase in sample effort will be conducted on Skilak lake. This is also a co-operative project with Paul Skovrc.

Project: Stock Separation

Recommendation: Preliminary results of the 1989 investigations into separating Kenai from Other sockeye salmon stocks in Upper Cook Inlet appears promising. Therefore, as a test case the 1990 season will be used to evaluate the use of this technique "in season".

Project: Computer program modification

Recommendation: Commercial catch programs, similar to existing programs for salmon, are needed for razor clams and herring. Therefore, a request is made to have Fred Jamsen modify existing programs to handle these data.

Recommendation: The existing Upper Cook Inlet computer programs, which handle AWL data from the Catch and Escapement sampling programs, were modified from Bristol Bay programs. These programs are time consuming and a burden to run. Therefore, we are requesting that Fred Jamsen review these programs with local staff and modify them or rewrite new programs to make data handling more cost effective.

Project: Eastside Test Fishery

Recommendation: A number of fishermen have expressed the idea that the chinook harvest on the eastside beaches could be reduced by using monofilament gear (chinook would be less likely to tangle in the gear). This option has not been explored and may offer a partial solution to the question " What is the Department doing to reduce chinook harvest". A test fishery, funded by test fish funds from the fishery, could be implemented during the 1990 season. The low average catch rate of chinook salmon per net (6) would require a significant amount of gear to be monitored. This has the advantage of watching how the eastside set net fishery operates while conducting research not oriented specifically at this issue. Points of discussion include : how to pay for the program, how do we gather data if the fishery has consecutive openings, could fishermen keep their catch if we had them fish regular periods with monofilament gear and regular gear in a test net?, is there enough time to order nets prior to the 1990 season ?

Project: Stock Identification

Recommendation: Recent work with sockeye salmon parasites may offer an alternative stock separation method. Preliminary work in the Kasilof River system has indicated that this system is free of brain parasites. Adam Moles of Auke Bay lab indicated that this is expected and that parasites would more likely be found in clear, coastal lake systems with high fish densities. Discussion with Adam indicated that some Susitna River lakes should meet that criteria. Adam Moles has offered to pay for the shipment of samples from Cook Inlet to Auke Bay, examine the samples for three parasite groups, and report the results back to us. Therefore, during the 1990 season 50 adult sockeye salmon

Martin/Wolverine

Big Lake/Fishhook
Daniels Lake
Coal Creek

from the following systems will be collected at a minimum and sent to Adam : Kenai river mainstem, Russian river, Hidden Lake, Kasilof river, Crescent river, Yentna river, and the Susitna river at Sunshine. The following systems may be added if Cook Inlet Aquaculture Association will collect the samples: Packer lake, Judd lake, Hewitt lake, Shell lake, and Chelatna lake. If additional funds are available Larson lake, Big River, and McArthur river will be added.

Recommendation: New stock separation techniques, such as proportional cut point, will be explored during the 1990 season.

Project: Offshore Test Fish

Recommendation: The Offshore test fish project has assumed that a single test fish vessel can adequately monitor the entry pattern of sockeye salmon into the Upper Inlet. This assumption needs to be tested and alternatives to increase sampling power investigated. One obvious option is to increase the number of vessels fishing. However, the existing project is not self sufficient and only pays about 50 percent of the cost from the sale of fish. A second method would be to use hydroacoustic gear to monitor the entry pattern of fish. This method has the advantage of significantly increasing sampling power. However, the development of this project is a long term commitment as upward looking transducers would probably be required, real time data analysis is necessary, and species allocation problems exist. Unfortunately, this may be the only option to solve some of the OTF problems. A small scale pilot project may be worth investigating in 1990. This project would most likely be contracted similar to the Susitna River studies. Paul Skovrc should be contacted during project development.